

White Salmon River Recreational Use Study: Final Report



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Previous Research on the White Salmon River

- Burns, R.C., Graefe, A., Heilman, M., and Wade, J. A. (2011). A comparison of perceptions and attitudes of commercially guided recreational users and private recreation users on the White Salmon River, Washington. Journal of Outdoor Recreation, Education, and Leadership, 3(2), 84—86.
- Burns, R.C. and, Wade, J. (2011). Building a Sustainable Community of Whitewater River Rafting Outfitter Guide Companies: Challenges and Successes of a Collaborative Planning Process. Proceedings of The 14th European Forum on Urban Forestry. (pp. 28, Online only). Glasgow, Scotland.
- Burns, R.C., Graefe, A., Robinson, K. and Woodruff, S. (2010). 2009 White Salmon Wild and Scenic River recreation use study: An evaluation of river use patterns. Submitted to USDA Forest Service, Region 6, Portland, Oregon, 106 pages.
- Burns, R. C., (2015, April). Using Data in Recreation Management: The White Salmon River Case Study. Oral session presented at the meeting of the Joint 2015 Society of Outdoor Recreation Professionals (SORP) Conferences and 27th Northeastern Recreation Research Symposium (NERR), Annapolis, MD.
- Burns, R.C., and Graefe, A. (2010). A comparison of perceptions and attitudes of commercially guided recreational users and private recreational users on the White Salmon River. Association of Outdoor Recreation and Education (AORE). Winter Park, Colorado. (paper presentation) November 11—13th.
- Cooper, R., Graefe, A., and Burns, R.C. (2010). Visitor experience on the White Salmon River: An examination of encounters, norms, and crowding. The 22nd Northeastern Recreation Research Symposium (NERR). Bolton Landing, NY. (poster presentation) April 10—April 13th.
- Weaver, C., Burns, R.C., and Graefe, A. (2010). An analysis of white-water rafters' perceptions of social carrying capacity variables. The 22nd Northeastern Recreation Research Symposium (NERR). Bolton Landing, NY. (poster presentation) April 10—April 13th.
- Cooper, R., Graefe, A., and Burns, R.C. (2009). Examining the encounter-norm-crowding relationship on the lower White Salmon River in the state of Washington. The 21st Northeastern Recreation Research Symposium (NERR). Bolton Landing, NY. (oral presentation) March 30—April 1st.

Local Situation

- River permits will expire at the end of 2020.
- The White Salmon River management plan allows for 10 permits (one was reserved as a pool).
- No limits on service days, people, boats, etc.
- The Forest Service policy on outfitter guide permits has changed since the last permits were issued.
- Environmental reviews are required to reissue priority permits.

Goals & Objectives

- Understand recreational use of White Salmon River
- Customer attributes (e.g. commercial, private, demographics, etc.)
 - Use type (e.g. rafter, kayaker, etc.)
 - Perceptions (e.g. satisfaction, experience, etc.)
- Examine trends over time
 - Use
 - Perceptions



Methods

- 5 page, in-person interview with trained technicians recording data

- 6 different locations

- 849 surveys (June-September)

- 54 sampling days (weekday & weekend)

- Morning, mid-day, and evening



2019 Survey Results

Commercial and Private Differences



2019 Commercial Use – Private Use at the White Salmon River

2019	Respondents	Valid Percent
Commercial Use	513	61.1
Private Use	327	38.9
Total Survey Days	840	

Visitor Profile

Commercial – Private Differences

	Commercial	Private	Overall
Age	--- (Percent)---		
16 to 20	11.3	7.6	9.8
21 to 30	27.9	31.8	29.6
31 to 40	24.6	27.5	25.4
41 to 50	18.7	18.7	18.7
51 to 60	11.5	9.8	11.1
61 to 70	3.7	3.1	3.4
Over 70	1.0	0.6	0.8
Blank	1.4	0.9	1.1
Gender*			
Male	59.6	68.2	63.0
Female	39.2	31.2	36.0
Trans	0.6	0.0	0.35
Visitor is from another country:*			
Yes	3.5	0.9	2.5
No	96.5	99.1	97.5

Group Size & Preference:

Commercial – Private Differences

	Expectation			Performance		
	With which size group would you prefer to run the river?***			How many people are in your group today?		
	Commercial	Private	Overall	Commercial	Private	Overall
Small (5 or fewer)	40.0	77.7	54.5	54.0	80.1	64.3
Medium (6-15)	39.2	14.1	29.6	35.9	16.8	28.3
Large (16-25)	6.4	0.6	4.1	10.1	3.1	7.4
Makes no difference	14.4	7.6	11.8	---	---	---
Mean (# in group)	---	---	---	7.53	4.85	6.50***

Private users prefer and visit in smaller groups than commercial users

Number of People Expectation vs. Reality

How did the number of people you saw during your visit on the White Salmon River compare with what you expected to see?***

	Commercial	Private	Overall
A lot less than you expected	7.6	10.7	9.0
A little less than you expected	12.9	26.0	17.9
About what you expected	49.7	46.8	48.6
A little more than you expected	18.2	8.3	14.2
A lot more than you expected	5.3	3.7	4.6
You didn't have any expectations	6.3	4.6	5.7

Private users saw fewer people than they expected than commercial users, although overall most were about what they expected

Overall Satisfaction:

Commercial – Private Differences

Overall Satisfaction (%)	Poor (1)	Fair (2)	Good (3)	Very Good (4)	Excellent (5)	Perfect (6)	Mean
Commercial	0.0	0.0	0.2	1.6	21.7	76.6	5.75
Private	0.3	0.0	0.0	4.6	26.2	68.9	5.63
Overall	0.12	0.0	0.12	2.75	23.4	73.6	5.70**

Response Code: 1 = “Poor” and 6 = “Perfect”

Overall Crowding:

Commercial – Private Differences

	1	2	3	4	5	6	7	8	9	
Perception of Crowding (%)	Not at all Crowded		Slightly Crowded		Moderately Crowded			Extremely Crowded		Mean
Commercial	32.4	26.9	18.7	10.1	5.1	4.9	1.6	0.4	0.0	2.51
Private	36.2	26.1	13.2	9.8	7.4	3.4	3.4	0.6	0.0	2.53
Overall	34.1	26.4	16.6	9.9	5.9	4.4	2.2	0.5	0.0	2.52

Percentages may not equal 100 because of rounding.

Response Code: 1 = “Not Crowded at all” and 9 = “Extremely Crowded”

Trip Satisfaction:

Commercial – Private Differences

	Commercial	Private	Overall
	---Mean---		
Health and cleanliness***	4.66	4.47	4.59
Safety and security***	4.64	4.33	4.52
Condition of facilities***	4.55	3.89	4.29
Responsiveness of staff***	4.81	4.35	4.71
Recreation setting***	4.79	4.65	4.74

*** Differences between group type statistically significant at the $p < .001$ level

Response Code: 1= "Awful" and 5 = "Excellent"

Higher quality ratings on commercial trips

Quality of Experience: Commercial – Private Differences

Quality Attribute	Commercial	Private	Overall
---Mean---			
Positively worded statements (<u>higher</u> mean score is better)			
I thoroughly enjoyed my visit to WSR	4.90	4.92	4.91
I had the opportunity to recreate without feeling crowded	4.76	4.59	4.69
I could find places to recreate without conflict from other visitors	4.68	4.73	4.70
My trip to the WSR was well worth the money I spent to take it	4.78	4.85	4.81*
There is a good balance between social and biological values in the management of WSR	4.36	4.21	4.31*
The other people at WSR increased my enjoyment	3.72	3.49	3.63**
The river and its surroundings are in good condition	4.6	4.45	4.54**
Negatively worded statements (<u>lower</u> mean score is better)			
Recreation activities at the river were NOT compatible	1.43	1.51	1.47
I was disappointed with some aspects of my visit to the river	1.40	1.48	1.43
I avoided some places at the river because there were too many people there	1.46	1.72	1.56***
The number of people at the river reduced my enjoyment	1.72	1.87	1.78*
The behavior of other people at the river interfered with the quality of my experience	1.51	1.63	1.56*

Response Code: 1 = "Strongly Disagree" and 5 = "Strongly Agree"

More differences noted here...private users generally have lower rating scores

Reason for Recreating:

Commercial – Private Differences

Importance Item	Commercial	Private	Overall
	---Mean---		
To be outdoors***	4.47	4.68	4.55
For relaxation***	4.01	4.24	4.10
To get away from the regular routine	4.33	4.28	4.31
For the challenge or sport***	3.96	4.41	4.14
For family recreation***	3.85	3.23	3.61
For physical exercise***	3.65	4.07	3.81
To be with my friends	4.31	4.41	4.35
To experience natural surroundings***	4.50	4.64	4.55
To develop my skills***	3.29	4.29	3.68

Response Code: 1= "Not at all Important"
and 5 = "Extremely Important"

Commercial: family recreation

Private: relaxation, challenge, exercise, develop skills

Both: outdoors, break from routine, be with friends,
natural surroundings

Experience Preferences:

Commercial – Private Differences

Experience Preference***	Commercial	Private	Overall
Which category best describes the experience you think should be provided on the White Salmon River?			
	---Percent---		
Wilderness: where solitude is part of the experience	22.6	10.7	18.0
Semi-wilderness: where complete solitude is not expected	34.4	27.3	31.6
Undeveloped recreation: where you expect to see other people some of the time	28.1	37.4	31.7
Scenic recreation: where you expect to see other people much of the time	11.4	19.0	14.4
Social recreation: where seeing many people is part of the experience	3.5	5.5	4.3

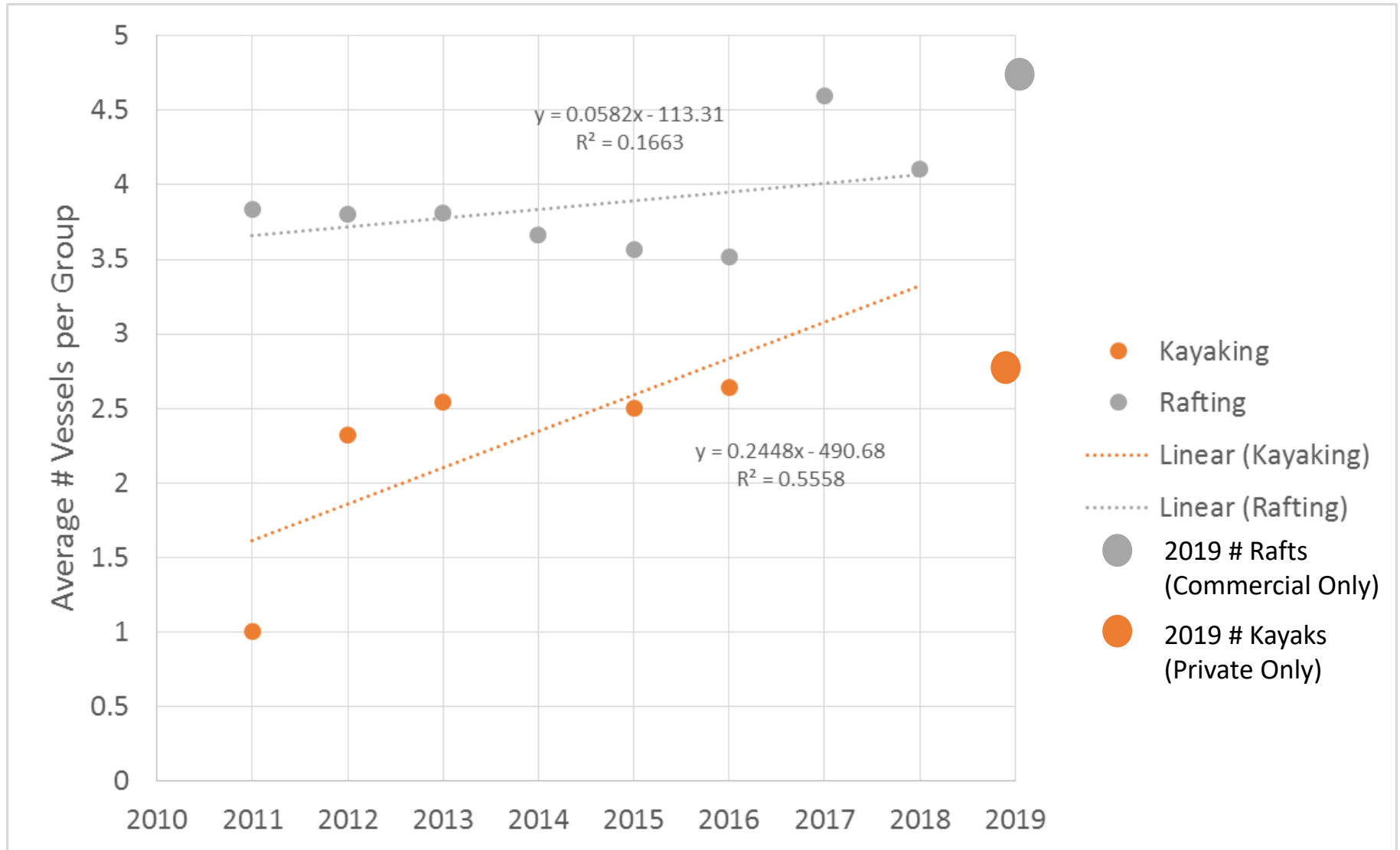
Watercraft Usage:

Commercial – Private Differences

	Commercial	Private	Overall
	---Mean---		
Total # Vessels***	5.0	3.16	4.32
# Rafts***	4.95	0.51	3.20
# Kayaks***	0.06	2.63	1.07
Other Vessels***	0.001	0.8	0.03

*** Differences between group type statistically significant at the $p < .001$ level

WSR Average # Vessels per Group



Waiting time & Preference:

Commercial – Private Differences

	Expectation			Performance		
	How long is it OK to wait before you can start your trip?			How long did you have to wait before starting your trip?		
	Commercial	Private	Overall	Commercial	Private	Overall
It doesn't matter	10.1	14.7	11.9	---	---	---
It does matter	89.9	85.3	88.1	---	---	---
No wait	2.4	6.1	3.8	94.1	90.8	92.9
1 to 10 minutes	49.7	44.8	47.8	5.1	6.7	5.7
11 to 30 minutes	47.3	46.6	47.0	0.6	2.4	1.3
More than 31 min	0.7	2.5	1.4	0.1	0.0	0.1
Mean (# minutes)	13.16	14.12	13.68	0.47 overall; 7.97 if any wait	0.91 overall; 9.97 if any wait	0.63 overall; 8.97 if any wait*

Results show that the amount of time visitors had to wait was within the acceptable time they indicated.

2019 WSR Summary Notes

- Most users see about what they expect in terms of number of people during their visit
- Crowding and # of groups encountered leveled off at low values
- Almost all visitors rate their experience as either “perfect” or “excellent”
- Satisfaction is very high, private and commercial users differ slightly in their ratings and preferences
- Average # vessels per group shows slight increase for rafting (~4.5–5)
- Average # vessels per group shows leveling off for kayaking (~2.6)

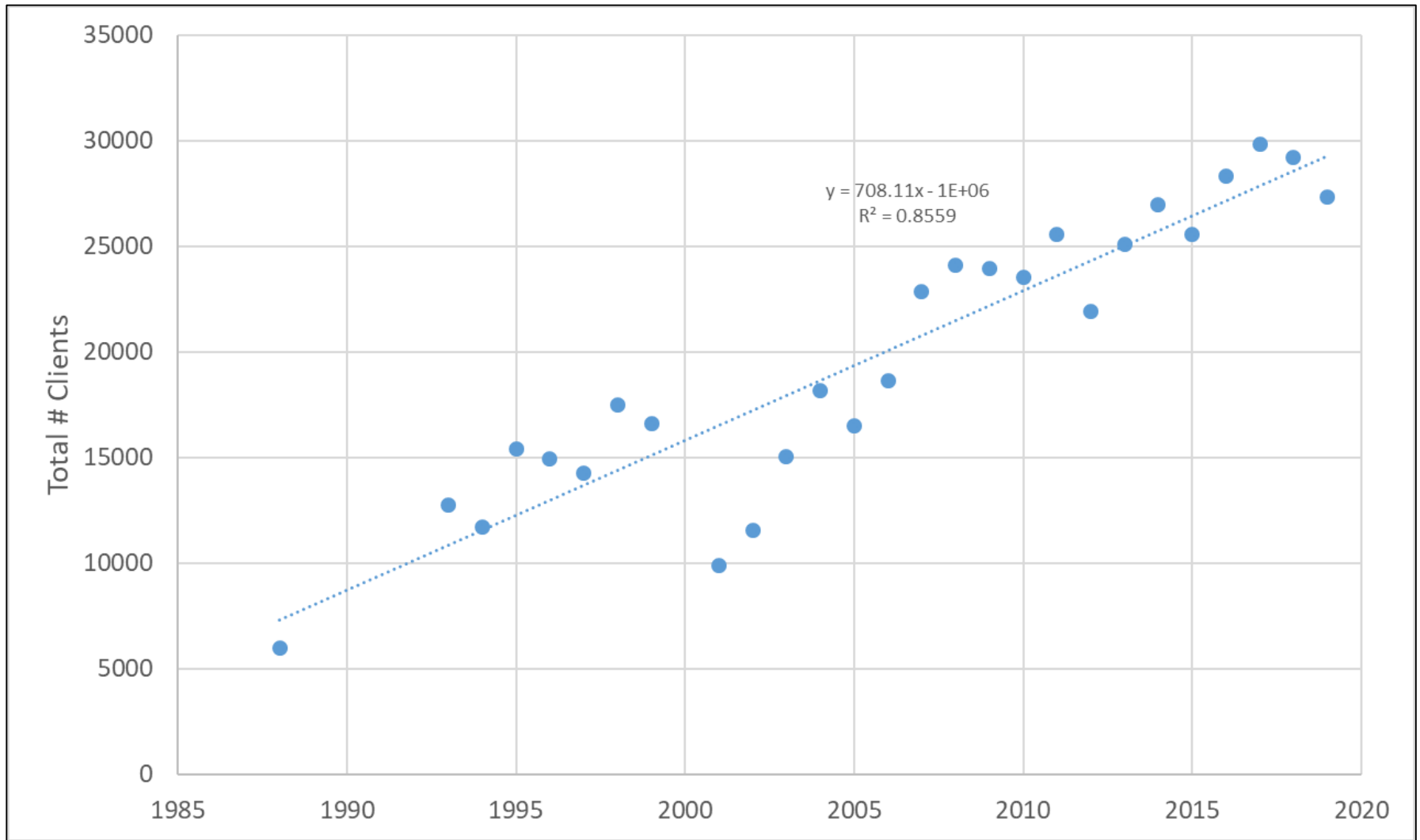


Research data and perspectives compared over time

2009 and 2019 Analysis



WSR Total Clients



Total # of clients reported hovering around 25,000 – 30,000 with a slight decline from ~29,000 in 2018 to ~27,000 in 2019

2009 vs. 2019 Commercial Use – Private Use

2009	Respondents	Valid Percent
Commercial Use	746	70.4
Private Use	314	29.6
Total Survey Days	1060	

2019	Respondents	Valid Percent
Commercial Use	513	61.1
Private Use	327	38.9
Total Survey Days	840	

2009 vs. 2019 Visitor Profile Differences Overall

	2009	2019
Age		
16 to 20	5.0	9.8
21 to 30	29.7	29.6
31 to 40	26.8	25.4
41 to 50	21.7	18.7
51 to 60	13.2	11.1
61 to 70	3.5	3.4
Over 70	0.1	0.8
Gender		
Male	55.2	63.0
Female	33.2	36.0
Trans	0.0	0.35

Very similar age and gender distributions, slightly younger and more male in 2019 samples

2009 vs. 2019 Recreational Patterns

In a typical year, how many days do you spend recreating at the White Salmon River?

	2009	2019
Average Number Days	10.10	26.54

In a typical year, how many days do you spend recreating at other rivers besides White Salmon River?

Average Number Days	23.22	30.40
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More frequent users captured in 2019 survey samples of both White Salmon River and other rivers

2009 vs. 2019 Group Size & Preference:

	Expectation		Performance	
	With which size group would you prefer to run the river?		How many people are in your group today?	
	2009	2019	2009	2019
Small (5 or fewer)	39.7	54.5	60.1	64.3
Medium (6-15)	37.1	29.6	30.0	28.3
Large (16-25)	4.9	4.1	10.0	7.4
Makes no difference	18.3	11.8	---	---
Mean (# in group)	---	---	8.0	6.50

Smaller groups are preferred in 2019 and average groups sizes are similar, but slightly smaller in 2019

2009 vs. 2019 Number of People Seen: Expectation vs. Reality

How did the number of people you saw during your visit on the White Salmon River compare with what you expected to see?

	2009	2019
A lot less than you expected	13.8	9.0
A little less than you expected	12.7	17.9
About what you expected	41.8	48.6
A little more than you expected	15.1	14.2
A lot more than you expected	6.3	4.6
You didn't have any expectations	10.2	5.7

Expectation and reality are similar between 2009 and 2019, with a slightly higher amount seeing more than expected in 2009

Encountering Other Groups Over Time

	1993	1997	2008	2009	2019
Number encounters	3.14	2.65	3.70	4.70	3.10
Appropriate number	5.05	5.87	4.00	5.27	5.43

The # of encounters has gone down while the appropriate # has stayed relatively constant around 5

Waiting Times 2009 vs. 2019

How long did you have to wait today before starting your trip? (Valid percentage)

	2009	2019
No wait	51.5	92.9
1 to 10 minutes	37.7	5.7
11 to 30 minutes	9.1	1.3
More than 30 minutes	1.7	0.1

Wait times are overall very low, and have gone down in the last 10 years

Crowding and Overall Satisfaction with Experience on White Salmon River Over Time

How crowded did you feel during your visit to the White Salmon River?
(Scale of 1 – 9)

Crowding	1993	1997	2008	2009	2019
Mean Score	1.66	1.38	2.28	2.64	2.52

Experience	1993	1997	2008	2009	2019
Perfect	57.3	73.5	42.3	65.6	73.6
Excellent	28.7	20.7	40.2	28.3	23.4
Very good	10.6	4.5	14.9	5.2	2.7
Good or below	3.2	1.2	2.6	<1	<1

2009 vs. 2019 Overall Satisfaction: Commercial – Private Differences

2009 Overall Satisfaction (%)	Poor (1)	Fair (2)	Good (3)	Very Good (4)	Excellent (5)	Perfect (6)	Mean
Commercial	0.0	0.0	0.7	4.2	24.5	70.6	5.65
Private	0.0	0.0	1.3	7.3	37.4	54.0	5.44

2019 Overall Satisfaction (%)	Poor (1)	Fair (2)	Good (3)	Very Good (4)	Excellent (5)	Perfect (6)	Mean
Commercial	0.0	0.0	0.2	1.6	21.7	76.6	5.75
Private	0.3	0.0	0.0	4.6	26.2	68.9	5.63

Private users maintain slightly lower satisfaction than commercial users, both are still very high. Slightly increase since 2009

2009 vs. 2019 Overall Crowding: Commercial – Private Differences

2009 Perception of Crowding (%)	1	2	3	4	5	6	7	8	9	Mean
	Not at all Crowded		Slightly Crowded		Moderately Crowded			Extremely Crowded		
Commercial	33.9	26.5	14.6	10.2	6.6	6.2	1.5	<1	<1	2.56
Private	31.2	23.2	16.6	9.6	5.4	8.3	4.5	<1	<1	2.84

2019 Perception of Crowding (%)	1	2	3	4	5	6	7	8	9	Mean
	Not at all Crowded		Slightly Crowded		Moderately Crowded			Extremely Crowded		
Commercial	32.4	26.9	18.7	10.1	5.1	4.9	1.6	0.4	0.0	2.51
Private	36.2	26.1	13.2	9.8	7.4	3.4	3.4	0.6	0.0	2.53

Crowding has decreased since 2009 very slightly, is still very low overall

2009 vs. 2019 Trip Satisfaction: Differences

	2009	2019
Health and cleanliness	4.57	4.59
Safety and security	4.54	4.52
Condition of facilities	4.38	4.29
Responsiveness of staff	4.74	4.71
Recreation setting	4.72	4.74

Response Code: 1= "Awful" and 5 = "Excellent"

Almost identical over time, with very slight decrease in facility condition, still high overall

2009 vs. 2019 Quality of Experience:

Quality Attribute	2009	2019
	---Mean---	
Positively worded statements (<u>higher</u> mean score is better)		
I thoroughly enjoyed my visit to WSR	4.83	4.91
I had the opportunity to recreate without feeling crowded	4.47	4.69
I could find places to recreate without conflict from other visitors	4.48	4.70
My trip to the WSR was well worth the money I spent to take it	4.72	4.81
There is a good balance between social and biological values in the management of WSR	4.05	4.31
The river and its surroundings are in good condition	4.47	4.54
Negatively worded statements (<u>lower</u> mean score is better)		
I was disappointed with some aspects of my visit to the river	1.57	1.43
I avoided some places at the river because there were too many people there	1.65	1.56
The number of people at the river reduced my enjoyment	1.83	1.78
The behavior of other people at the river interfered with the quality of my experience	1.63	1.56

Response Code: 1 = "Strongly Disagree" and 5 = "Strongly Agree"

All endpoints have improved (both positive and negative worded) since 2009

2009 vs. 2019 Reason for Recreating:

Importance Item	2009	2019
	---Mean---	
To be outdoors	4.60	4.55
For relaxation	4.16	4.10
To get away from the regular routine	4.46	4.31
For the challenge or sport	4.27	4.14
For family recreation	3.71	3.61
For physical exercise	3.83	3.81
To be with my friends	4.35	4.35
To experience natural surroundings	4.56	4.55
To develop my skills	3.48	3.68

Response Code: 1= "Not at all Important"
and 5 = "Extremely Important"

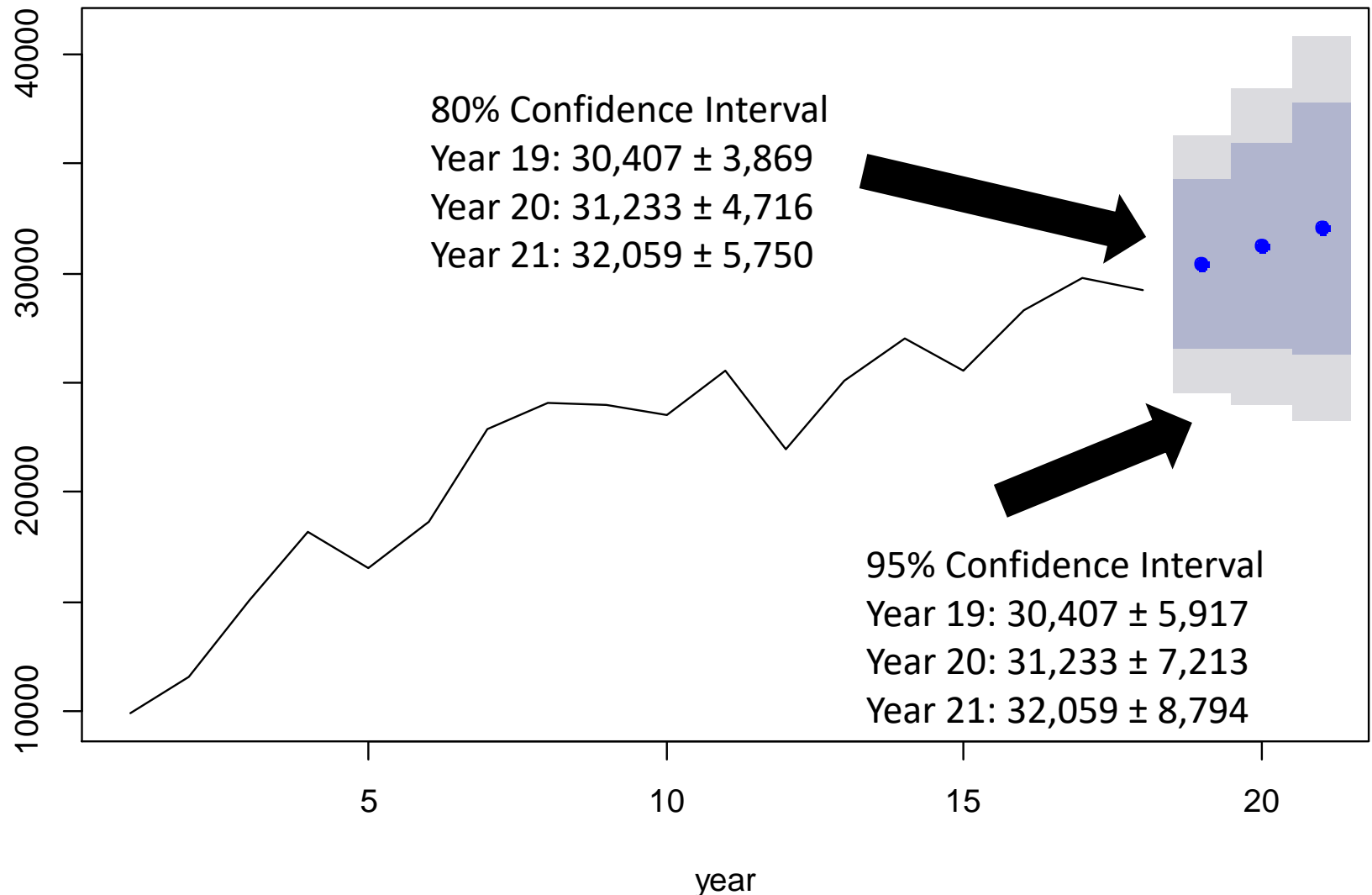
Very similar responses, with slight increases in developing skills and slight decreases in being outdoors, breaking routine, and family recreation

2009 vs. 2019 Experience Preferences:

Experience Preference	2009	2019
Which category best describes the experience you think should be provided on the White Salmon River?		
	---Percent---	
Wilderness: where solitude is part of the experience	14.7	18.0
Semi-wilderness: where complete solitude is not expected	30.1	31.6
Undeveloped recreation: where you expect to see other people some of the time	37.7	31.7
Scenic recreation: where you expect to see other people much of the time	13.4	14.4
Social recreation: where seeing many people is part of the experience	4.1	4.3

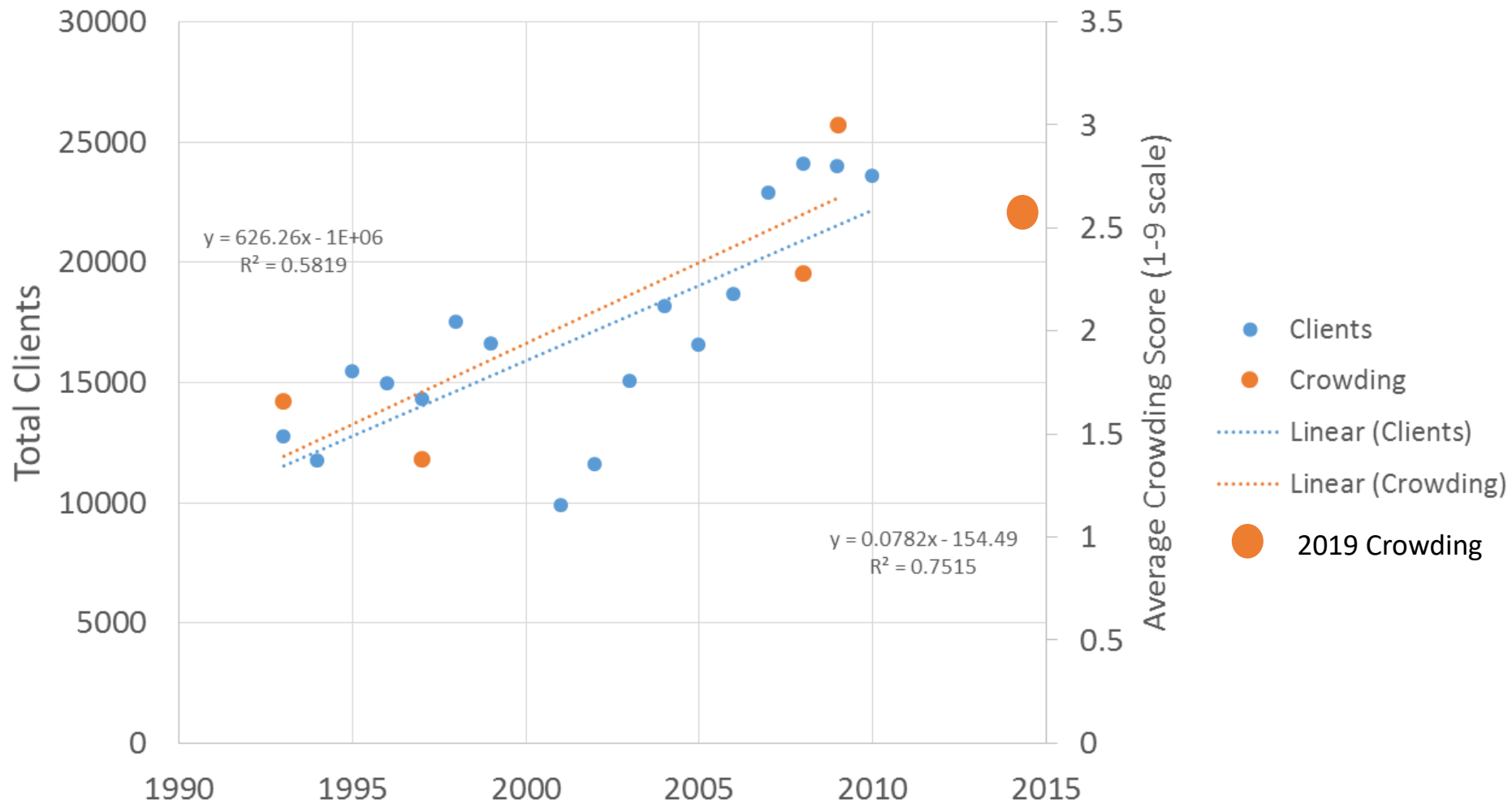
In 2019, slight decrease in undeveloped recreation and slight increases in ends of the spectrum toward both wilderness and social recreation

WSR Projected Total Clients

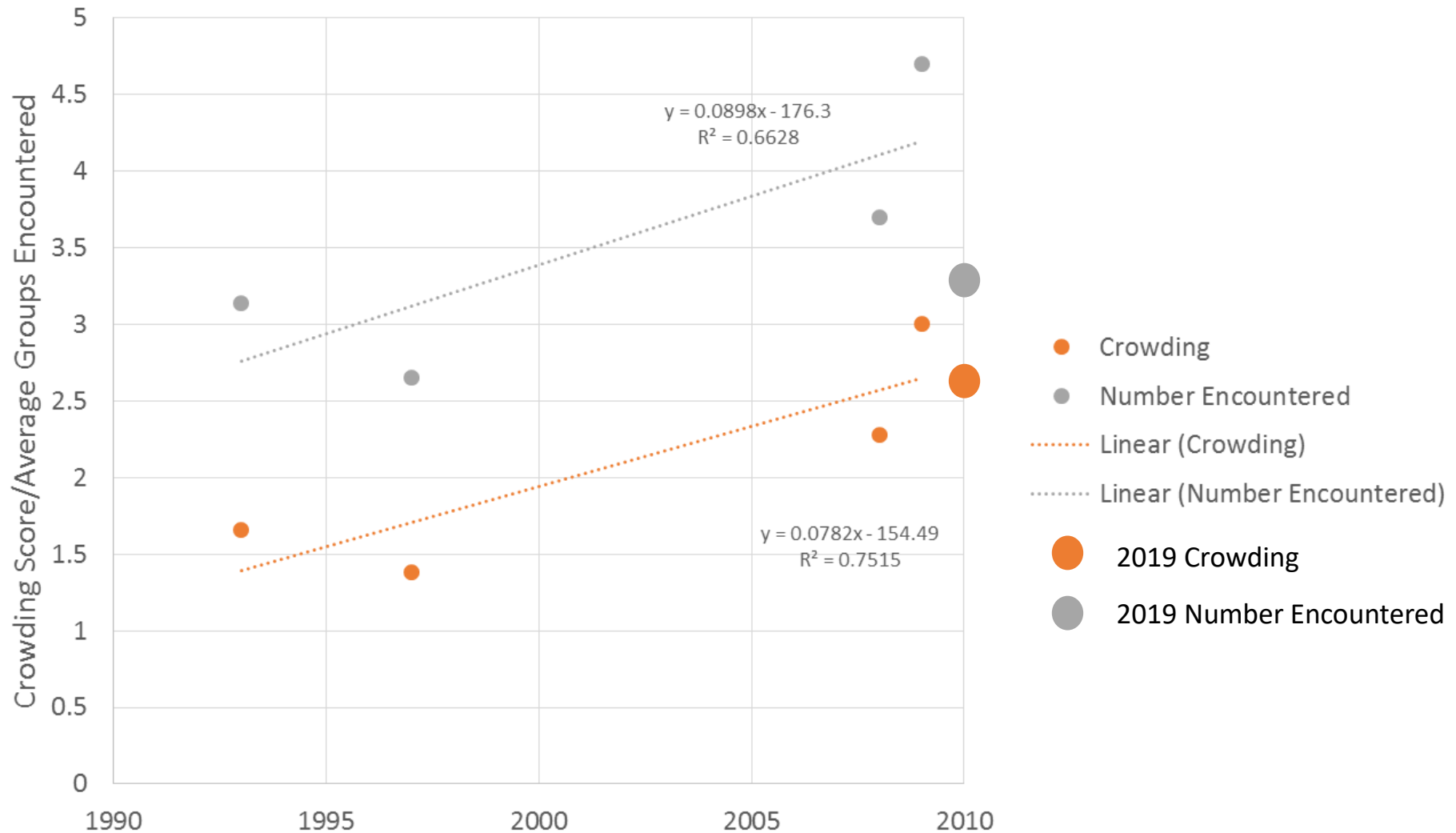


Based upon a time series forecasting model, # of clients was predicted to be ~30,400 for this year, but the actual value was ~27,000

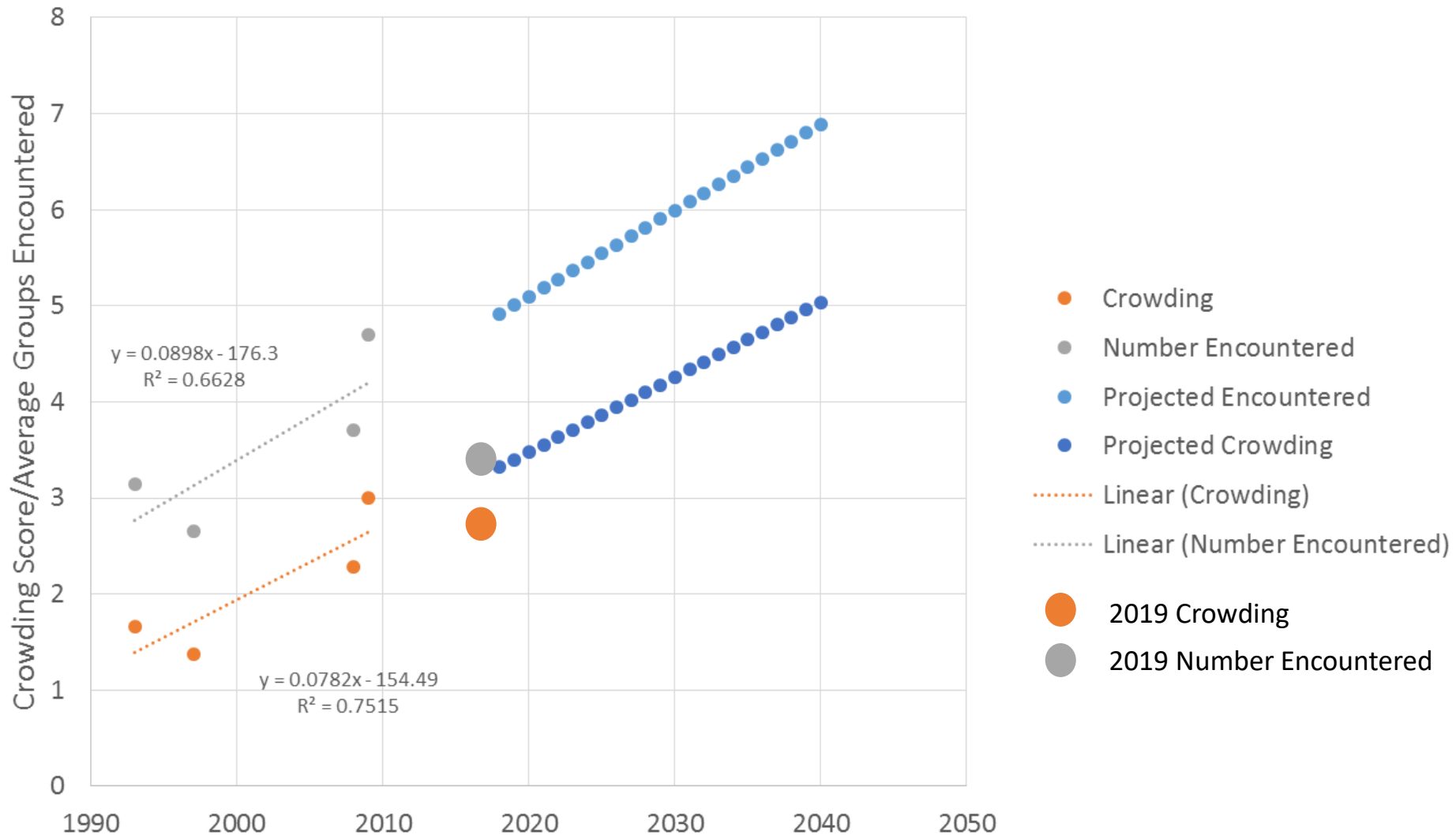
WSR Clients + Crowding



WSR Crowding + Number of Groups Encountered



WSR Crowding + Number of Groups Encountered Projected



Final Thoughts

- Very similar results from one decade before, satisfaction is still very high overall
- Total # clients increasing over last 25+ years (current level just under 30k)
- In 2009 commercial users showed differences from private users: more females, less frequent users, higher levels of satisfaction, lower crowding, idealistic view of experience, desire to get away to exercise (in a social setting)
- 2019 commercial visitors felt slightly less crowded and more satisfied than private visitors
- In 2019 commercial and private visitors indicated that waiting time does matter, however the amount of waiting was within the acceptable time they indicated



Discussion/Questions

- How do these data best address/inform SUP process?
- How can we best supplement these and other existing data to address perceptions?
- How does this link to carrying capacity analysis for CRGNSA managers?
- What are ideal/acceptable levels of crowding, satisfaction, etc?



Thank you!

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